

Appl. No. : **CT/JP00/02785**
 Filed : **April 27, 2000**

5. (Amended) The plasmid vector according to [any one of] claim[s] 1 [to 4], wherein a DNA segment encoding a nuclear localization signal is further added to the integrase gene.

6. (Amended) The plasmid vector according to [any one of] claim[s] 1 [to 5], wherein the integrase gene [and/or the LTRs are] is derived from viruses belonging to Retroviridae.

8. (Amended) A transformant transformed by using the plasmid vector according to [any one of] claim[s] 2 [to 7].

9. (Amended) A chimeric animal other than humans, wherein the plasmid vector according to [any one of] claim[s] 2 [to 7] has been integrated into the genome thereof.

10. (Amended) A transgenic animal other than humans, wherein the plasmid vector according to [any one of] claim[s] 2 [to 7] has been integrated into the genome thereof.

11. (Amended) A method for producing a bird that has incorporated foreign DNA, the method comprising the steps of:

injecting into an embryo in an egg of a bird the plasmid vector according to [any one of] claim[s] 2 [to 7];

allowing the DNA segment (D4) according to [any one of] claim[s] 2 [to 7] to integrate into the genome of cells that constitute the embryo; and

hatching the egg to obtain an individual that has incorporated the DNA segment (D4).

12. (Amended) A method for producing a bird that has incorporated foreign DNA, the method comprising the steps of:

injecting the plasmid vector according to [any one of] claim[s] 2 [to 7] into primordial germ cells collected from a bird embryo at an early developmental stage;

allowing the DNA segment (D4) according to [any one of] claim[s] 2 [to 7] of the plasmid vector to integrate into the genome of the primordial germ cells;

injecting the primordial germ cells that have incorporated the DNA segment (D4) into an early embryo in an egg laid by other individuals; and

hatching the egg to obtain an individual that has incorporated the DNA segment (D4).

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13. (Amended) A method for producing a transgenic bird, wherein the individual according to [any one of] claim 11 [or 12] whose germline cells have incorporated foreign DNA is allowed to naturally mate or artificially fertilized.

14. (Amended) A method for producing a transgenic animal, wherein the plasmid vector according to [any one of] claim[s] 2 [to 7] is injected into a testis of a male non-human vertebrate animal, and the animal having the plasmid vector injected thereinto is allowed to naturally mate or artificially fertilized.

15. (Amended) A method for producing a useful substance comprising the steps of:
providing the plasmid vector according to [any one of] claim[s] 2 [to 7], wherein the segment (D4) of the plasmid vector includes a region encoding a protein and a control region for controlling the expression of the protein;
introducing the plasmid vector into a host cell; and
allowing the DNA segment (D4) to integrate into the genome of the host cell such that the protein encoded by the DNA segment (D4) is expressed in the host cell to produce the useful product.

16. (Amended) A method for producing a useful substance comprising the steps of:

providing the plasmid vector according to [any one of] claim[s] 2 [to 7], wherein the segment (D4) of the plasmid vector includes a region encoding a protein and a control region for controlling the expression of the protein;

introducing the plasmid vector into a bird embryo; and
allowing the DNA segment (D4) to integrate into the genome of cells that constitute the embryo to produce a bird that has incorporated the DNA segment (D4) in somatic cells such that the useful substance is produced in an egg laid by the bird that has incorporated the DNA segment (D4).

17. (Amended) A method for producing a useful substance comprising the steps of:

providing the plasmid vector according to [any one of] claim[s] 2 [to 7], wherein the segment (D4) of the plasmid vector includes a region encoding a protein and a control region for controlling the expression of the protein;

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injecting the plasmid vector into an embryo in an egg of a bird;

allowing the DNA segment to integrate into the genome of cells that constitute the embryo;

hatching the egg to obtain a first generation bird the germline cells of which have incorporated the DNA segment; and

obtaining the useful substance in eggs laid by birds selected from the group consisting of:

a transgenic bird heterozygous with respect to the DNA segment produced by allowing the first generation birds to naturally mate or artificially fertilizing the first generation birds;

a transgenic bird heterozygous or homozygous with respect to the DNA segment produced by allowing the heterozygous birds to naturally mate or artificially fertilizing the heterozygous birds; and

a transgenic bird heterozygous or homozygous with respect to the DNA segment produced by continuing to cross the heterozygotic or homozygotic birds through successive generations.

18. (Amended) A method for producing a useful substance comprising the steps of:

providing the plasmid vector according to [any one of] claim[s] 2 [to 7], wherein the segment (D4) of the plasmid vector includes a region encoding a protein and a control region for controlling the expression of the protein;

introducing the plasmid vector into primordial germ cells collected from a bird embryo at an early developmental stage;

allowing the DNA segment of the plasmid vector to integrate into the genome of the primordial germ cells;

injecting the primordial germ cells that have incorporated the DNA segment into an early embryo in an egg laid by other individuals;

hatching the egg to obtain a first generation bird the germline cells of which have incorporated the DNA segment; and

obtaining the useful substance in eggs laid by birds selected from the group consisting of: